The enlargement of this month's abstract section was made possible by a kind contribution from Lakeside Laboratories, Inc., Milwaukee, Wis.

In a patient with hyperglobulinemic purpura, histochemical studies of the cutaneous blood vessels revealed an accumulation of Schiff-positive material. The finding of this carbohydrate-like deposit was considered important in the pathogenesis of the vascular fragility. An increased carbohydrate content was found in serum proteins and particularly in the gamma globulins. This was particularly true for fucose. A primary alteration of glycoprotein metabolism was assumed to be at the basis of the disease.—P. d. N.

ERYTHROCYTES

QUANTITATIVE MEASUREMENT OF ERYTHROPOIESIS


An important study which gives the normal, erythrophinetic values of the laboratory dog. Forty normal adult mongrel dogs of both sexes, weights ranging from 10 to 35 Kg., were inoculated, dewormed and kept for at least two weeks in the animal house before being studied. The following determinations were carried out, and the mean values given:

(1) Hematocrit: 40 per cent; (2) Reticulocytes: 0.32 per cent; (3) Serum iron: 102 μg. per cent; (4) Total red cell volume (Cr51): 38.6 ml./Kg.; (5) Plasma volume; (Cr51 + peripheral hematocrit): 46 ml./Kg.; (6) Plasma volume: (Extrapolation of Fe59 disappearance): 48 ml./Kg.; (7) Plasma Fe59 T: 66 min.; (8) Plasma iron turnover: 0.63 mg./Kg./day; (9) Red cell iron utilization: 90 per cent; (10) Red cell iron renewal: 1.26 per cent/day; (11) Average life span (Cr51): 108 days; (12) Red cell life span Cr51: 24.3 days; and (13) Elution rate of Cr51: 1.77 per cent/day.—A. E.


This paper reports the clinical and postmortem findings of a four month old infant who had suffered from severe anemia and renal disease since birth. A quantitative and qualitative study by means of microdissection of nephrons was carried out on the kidney; these showed a generalized marked decrease in the length of the loops of Henle. It is suggested that in the normal kidney the loop of Henle may be the site of formation of the erythrocyte-stimulating factor and that the absence of this factor may have been a causative factor in the anemia of the infant.—G. C. de G.


Human serum injected intravenously into rabbits induced a reticulocyte response in 13 of 35 animals. The reticulocytosis obtained bore no relationship to the titer of anti-rabbit hemolysin present in the serum injected. Similarly, no change in the reticulocyte response was observed after an injection of serum deglobulinized by electrodialysis. Though an increase in the rabbit’s urine urobilinogen was detected following an injection of serum from anemic patients as compared with normal, the reticulocyte response in both instances was identical. Thus the erythropoietic effect of serum, as measured by the reticulocyte response, had not been found to be associated with the serum globulin, with hemolysins or with the urobilinogen level.—J. J. B.


Schilling tests were done in 20 normal subjects and in 32 patients with chronic renal failure. Urines were collected over a 24 hour period. In renal failure reduced excretion of Co60 (less than 7 per cent of the administered dose) was encountered only when the endogenous creatinine clearance was below 20 ml. per minute, corresponding to a plasma creatinine concentration of about 3 mg./100 ml. In order not to overlook this source of error the plasma creatinine concentration should always be determined when a Schilling test is performed. If the plasma creatinine is elevated, a creatinine clearance should be done. The Schilling test (24 hour urine collection) is unreliable when the clearance is lower than 20 ml./minute. No data are presented on results with extended urine collection.—S. A. K.

EFFECT OF PREDNISONE ON B12 ABSORPTION IN PERNICIOUS ANAEMIA. H. P. Østergaard Kristen-
most cases. C. eroblasts and hemosiderin were above normal in other anemias (pernicious, hemolytic) both skishemosiderin and normal sideroblast infectious-toxic anemia with low serum iron without bleeding, all patients had normal or increased hemosiderin was present in normal amounts. In all cases of acute hemorrhagic anemia even if seen in these cases. Sideroblasts were subnormal and the highest sideroblast count was 8 per cent. Sideroblasts were encountered in half of the cases, of hemosiderin granules in reticular cells was microscopically estimated and graded from 0 to 3+ in all normal smears, the percentage varying between 12 and 80. In iron deficiency anemia no sideroblasts were encountered in half of the cases, and the highest sideroblast count was 8 per cent. No reticular cells containing hemosiderin were seen in these cases. Sideroblasts were subnormal in all cases of acute hemorrhagic anemia even if hemosiderin was present in normal amounts. In infectious-toxic anemia with low serum iron without bleeding, all patients had normal or increased hemosiderin and normal sideroblast counts. In other anemias (pernicious, hemolytic) both sideroblasts and hemosiderin were above normal in most cases.—C. W.

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Ionized iron was demonstrated in bone marrow smears treated with 10 per cent solutions of potassium ferrocyanide and hydrochloric acid and counterstained with neutral red. The amount of hemosiderin granules in reticular cells was microscopically estimated and graded from 0 to 3+, and the percentage of sideroblasts (nucleated red cells containing hemosiderin granules) was counted. Among 39 normal adults the estimated hemosiderin was usually graded 1+, but 0 in 7 cases. On the other hand sideroblasts were seen in all normal smears, the percentage varying between 12 and 80. In iron deficiency anemia no sideroblasts were encountered in half of the cases, and the highest sideroblast count was 8 per cent. No reticular cells containing hemosiderin were seen in these cases. Sideroblasts were subnormal in all cases of acute hemorrhagic anemia even if hemosiderin was present in normal amounts. In infectious-toxic anemia with low serum iron without bleeding, all patients had normal or increased hemosiderin and normal sideroblast counts. In other anemias (pernicious, hemolytic) both sideroblasts and hemosiderin were above normal in most cases.—C. W.

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**ABSTRACTS**

*Sen and Thorkild Friis.* From the Medical Department E, Frederiksberg Hospital, Copenhagen, Denmark. Acta med. Scandinav. 166:249, 1960.

Fifteen patients with pernicious anemia were treated with prednisone 20 to 40 mg. daily for 12 to 22 days. In three previously untreated patients a reticulocyte response and a slight increase in red cell count ensued, but the marrows remained megaloblastic, except in one case in which erythropoiesis became partially normoblastic. Schilling tests showed that vitamin B₁₂ absorption increased in seven of the 15 patients during prednisone therapy. A significant rise in urinary B₁₂ excretion with prednisone treatment was noted only in patients who, prior to steroids, excreted more than 1.5 per cent of the administered Co⁶⁰ B₁₂. It is concluded that prednisone enhances gastrointestinal vitamin B₁₂ absorption. However, this occurs only in cases in which a certain residual capacity of B₁₂ absorption remains. The effect is assumed to be due to stimulation of intrinsic factor production.—S. A. K.


Ionized iron was demonstrated in bone marrow smears treated with 10 per cent solutions of potassium ferrocyanide and hydrochloric acid and counterstained with neutral red. The amount of hemosiderin granules in reticular cells was microscopically estimated and graded from 0 to 3+, and the percentage of sideroblasts (nucleated red cells containing hemosiderin granules) was counted. Among 39 normal adults the estimated hemosiderin was usually graded 1+, but 0 in 7 cases. On the other hand sideroblasts were seen in all normal smears, the percentage varying between 12 and 80. In iron deficiency anemia no sideroblasts were encountered in half of the cases, and the highest sideroblast count was 8 per cent. No reticular cells containing hemosiderin were seen in these cases. Sideroblasts were subnormal in all cases of acute hemorrhagic anemia even if hemosiderin was present in normal amounts. In infectious-toxic anemia with low serum iron without bleeding, all patients had normal or increased hemosiderin and normal sideroblast counts. In other anemias (pernicious, hemolytic) both sideroblasts and hemosiderin were above normal in most cases.—C. W.

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Sera from normal subjects and patients with hemolytic and pernicious anemia were studied with respect to their capacity to bind oxyhemoglobin, hemoglobin, and pyridine hemochrome. Electrophoresis was carried out on paper and in starch gel at various pH levels. The migration pattern of hemoglobin and its heme-containing metabolites depended on the composition of the serum and on the nature and concentration of the heme compound. Three serum proteins were able to carry appreciable amounts of hemoglobin or its naturally occurring heme-containing metabolites. *Haptoglobins* combine with globin whether this contains heme or not but do not react with free ferrous or ferric heme. A *heme-binding globulin* which migrates with the fast beta-globulins carries heme. This complex apparently does not contain globin. *Albumin* combines with free but not with globin-bound heme. Any hemoglobin or heme-containing hemoglobin derivatives which were not bound to any of these three proteins were found to migrate with a specific mobility of their own. Haptoglobin is the only serum protein able to carry appreciable amounts of hemoglobin or hemoglobin. Hence the haptoglobin-binding capacity of a serum is an adequate measure of its haptoglobin content.—S. A. K.

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**The haptoglobin groups of white Australians.** R. L. Kirk, Laurence Lai and D. L. Hogben. From the Zoology Department, University of Western Australia, Perth, Australia. Med. J. Australia. 1:45, 1960.

This paper reports the haptoglobin group of 394 white Australians. Statistical analysis reveals no significant difference in haptoglobin group frequency with age or sex. There is no significant difference between the haptoglobin group frequencies in the white Australian sample and the frequencies for other Caucasian white samples reported in the literature. Only one individual without haptoglobins was detected. The problem of satisfactory transport of serum for haptoglobin group determinations in anthropologic or medical investigations is discussed. Preliminary findings suggest that freeze-drying or storage at room temperature do not affect the haptoglobins for periods of at least one week.—G. C. de G.

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**Optical activity of stercobilin and D-Urobilin.** C. H. Gray, P. M. Jones, W. Klyne and
The conjugation of N-acetyl-p-aminophenol with glucuronic acid to form N-acetyl-p-aminophenol glucuronide was studied in newborn infants and older children by measuring the blood concentrations of these compounds. In newborn infants the formation of the glucuronido occurs at a greatly retarded rate, suggesting that the glucuronic acid transferase localized in the liver cells is not completely developed in the newborn infant.—G. W. J., III.


Stroma from normal subjects was found to reactivate the glucose-6-phosphate dehydrogenase activity of hemolysates from glucose-6-phosphate dehydrogenase-deficient subjects. This reactivation could be demonstrated only with the TPN-linked assay, and not with the GSH-linked method. Activation was temperature dependent. It proceeded very slowly below 20 C. This paper may represent a most significant development in the field of sensitivity to drug-induced hemolysis due to glucose-6-phosphate dehydrogenase activity deficiency.—E. B.


Careful separations of normal and phenylketonuric purified hemoglobin solutions were carried out on IRC-50 columns, utilizing a variety of developing agents. Resolution of the hemoglobin into a number of fractions occurred, not all of which appear to contain heme proteins. Normal hemoglobin may be resolved into at least six zones. Similarly, hemoglobin from a phenylketonuric individual was fractionated into an identical number of components. In each instance, the relative percentages of the fractions were approximately the same. Thus, the abnormal amounts of free phenylalanine in the phenylketonuric individual failed to influence significantly the biosynthesis of the hemoglobins.—A. I. C.

A discontinuous buffer system consisting of tris-EDTA-boric acid (TEB buffer) pH 9.1 and barbital buffer pH 8.6 is described for use with paper or starch gel electrophoresis of proteins and hemoglobins. The barbital buffer is placed in the electrode chambers, whereas the supporting medium is prepared with TEB buffer. Sharper, more distinct separations with less trailing is claimed for the “discontinuous” buffer system. Hemoglobin A2 may be quantitated with this technic.—A. I. C.


Five patients with only abnormal hemoglobins (3 S-S, 2 C-S) had resting arterial oxygen saturations below 92 per cent. The authors present evidence suggesting an altered affinity of the abnormal hemoglobin for oxygen resulting in a displacement of the oxyhemoglobin dissociation curves to the right. Resting arterial oxygen tensions were normal, and no evidence for abnormalities of the heart or lungs was found in these homozygous patients. Seven other patients with heterozygous hemoglobin combinations failed to show a similar displacement of the oxyhemoglobin dissociation curve. It is suggested that the phenomenon observed may be related to lowering of the intracellular pH of the red cells.—A. I. C.


The authors describe in vivo and in vitro observations on the blood from six healthy sickle cell trait donors during storage under standard blood bank conditions for 21 to 25 days. At 21 days, no differences in the immediate survival of the stored cells nor of their ultimate survival was detected between normal and sickle cell trait red cells. Two samples stored for 25 days had slightly subnormal immediate survival rates, but the figures are probably not significant. Interval observations of a number of erythrocytic and plasma parameters revealed no differences from the findings in nonsickling blood similarly handled.—A. I. C.


Clinical and hematologic data on three siblings with aplastic crises in sickle cell anemia are presented. Two entered the hospital simultaneously, nine days after the admission of the first patient. Infection was found in only one of the siblings. In two of the patients, the megaloblastic maturation arrest did not respond to the administration of folic acid.—A. I. C.


Sudden death in 10 children with sickle cell anemia, ranging in age from 8 months to 9 years, is described. Six of the patients were less than 20 months old. Eight children died within one hour of admission, the other two within 14 hours of entry into the hospital. All presented a shocklike picture of pallor, rapid shallow respirations, tachycardia and lethargy. In the four patients in whom hemoglobin determinations could be done, a level of less than 3 Gm./100 ml. was found. Autopsy findings in seven of these patients were remarkably similar, with microscopic vascular engorgement in the abdominal viscera and marked splenomegaly. Marked splenic and splanchnic engorgement with peripheral vascular collapse was felt to be a major factor in the pathogenesis of the shocklike state, although other stresses, such as dehydration and infection, undoubtedly contributed to the rapid demise.—A. I. C.


Angioid streaks have usually been found in the presence of either pseudo-xanthoma elasticum or osteitis deformans. The author presents two cases of angioid streaks in sickle cell anemia unaccompanied by either of the above disorders. (Since this publication has appeared, increasing
numbers of sickle cell anemia patients have been found with similar eye findings, supporting the importance of these observations.) No special features of the illness of these two patients seemed to be related to the development of this lesion.

—A. I. C.


Elliptocytic and drepanocytic anomalies in pure and in combined state were observed in three generations of an Italian family from the province of Salerno. No anemia was detected in any of the cases. In pure elliptocytosis no hemoglobin anomalies were found, and the hemoglobin component in the ellipto-drepanocytic subjects was within the range observed in sickle cell trait. By means of radioactive iron and chromium, bone marrow erythrolethesc hyperactivity and signs of hyperhemolysis were detected. The combination of the two anomalies does not seem to cause a more severe hematologic alteration than elliptocytosis in the heterozygous state.—P. d. N.


This paper gives details of two technics for the sensitization of red cells with activated papain. In method I, cysteine is the activator; in method II, thioglycollic acid is used. Both show increased sensitivity as compared with standard methods. These methods have simplified the preparation of sensitized cells so that their use in routine work is practicable even in the smallest laboratory. Thioglycollic acid is a cheaper and more readily available activator than cysteine, and also permits the preparation of a stable papain solution. It has replaced cysteine in the author's laboratory.—G. C. de G.


Differences in the solubilities of various genetically distinguishable mouse hemoglobins were employed to follow successful transplantation and growth of donor type progenitors in mouse erythrocytes in lethally irradiated mice. Differences in hemoglobin crystal appearance may also be detected and can be used as a genetic marker.

—A. I. C.

**Effects of Polycythemia and Anemia on Cardiac Output and Other Circulatory Factors.** T. Q. Richardson and J. A. Vogel. From University of Mississippi Medical Center, Jackson, Miss. Am. J. Physiol. 197:1167, 1959.

Normovolemic anemia and polycythemia were induced and maintained for 14 days in 14 dogs. The mean right atrial, mean pulmonary and mean arterial pressures did not change. However, the cardiac output fell markedly in polycythemic dogs along with a rise in the total peripheral resistance and increased in anemic dogs along with a decrease in peripheral resistance. It was suggested that the increased viscosity of blood in polycythemia may be solely responsible for the low cardiac output and the decreased viscosity in anemia may be at least partly responsible for the high cardiac output.—A. E.

**LEUKOCYTES**


Daily subcutaneous injections of 1 ml. fresh citrated horse plasma were found to produce a more than tenfold rise in the blood basophils of the guinea pig.—T. E. B.


Leukocyte alkaline phosphatase activity was found to be consistently very low in paroxysmal nocturnal hemoglobinuria and to be occasionally abnormally low in idiopathic thrombocytopenic purpura, refractory anemia, pernicious anemia in relapse, collagen diseases, infectious mononucleosis and in myeloid metaplasia.—T. E. B.

**The Effects of Agranulocytic and Non-Agranulocytic Drugs in Rabbits Concurrently Treated with Busulfan (Myleran).**
ABSTRACTS


When thiouracil was given to rabbits concurrently treated with bisulfan, it distinctly augmented the effects of bisulfan in decreasing the granulocyte count in both peripheral blood and bone marrow. Thiouracil alone, however, had no apparent effect on the animals' blood counts or apparent effect on the bisulfan-treated animals. One might infer from this study that the bisulfan-effect even on the bisulfan-treated animals is not an idiosyncratic patient. In previous papers the authors have found that chloramphenicol and aminopyrine also regularly potentiated bisulfan effect on the rabbit marrow.

—T. E. B.


Crude leukemia mortality is recorded. Age groups 5 to 40 years have the lowest mortality rate. Leukemia mortality increased substantially between 1933 and 1957, mostly in age groups over 55 years.—P. G. R.


In 5 cases of lymphocytic leukemia, a shortened red cell life span was always found with C51. Only 3 of 5 cases with myeloproliferative disorders (including myelogenous leukemia, polycythemia vera, and myeloid metaplasia) had increased red cell destruction. These findings confirm earlier work from Berlin's, Dameshek's and Gelhorn's laboratories. The rate of red cell production, as measured with the Fe59 technic, was found to vary considerably. Considerable decreased production was found even in a case with little leukemic infiltration in the marrow. On the other hand, a case of agranogenic myeloid metaplasia showed increased erythrocyte formation. Naturally, the varied etiology of the anemia in patients with hematologic or other malignancies will have therapeutic implications.—P. G. R.


An attempt is made to correlate the steep rise in leukemia death rate in certain western mountainous countries in England and Wales with their relatively high radiostrontium deposition in soil, vegetables, milk and meat. An alternative explanation of the geographic differences in leukemia death rates (but not in present leukemia incidence) might be the familial incidence in leukemia demonstrated, e.g., by Vide. Others are differences in medical organization, longevity, etc.—P. G. R.


Two cases of lymphosarcoma and bronchogenic carcinoma were treated by means of radiation and cytostatic agents to the appearance of bone marrow aplasia. This was followed by transplantation of bone marrow obtained from the same patients before treatment. The technic for preserving the bone marrow at −79 C. is described. In both cases the peripheral blood values were markedly depressed by radiation or cytostatic agents but returned to normal values after the transplantation.—P. d. N.

RADIATION INJURY


The 6 major human groups in which radiation-induced leukemia has been suspected are carefully and critically reviewed. In the Japanese atomic bomb survivors, the average incubation time is 5 years. The errors of the dose-estimates in this group are analyzed and their magnitude demonstrated. The considerable effect of varying neutron relative biological effectiveness on the slope of the dose-incidence curve is established.
The leukemia risk at exposures over 100 r is re-estimated to be 1 to 2.10^6 persons/year/rad. No valid data are considered to exist at lower dose levels. The difficulties in finding adequate controls for the irradiated group of British spondylitics is emphasized. The same applies to the group of fetuses irradiated during pelvimetry and to that of infants with enlarged thymus glands. Thus, irradiated infants with normal thymus sizes show no increased leukemia frequency. In the group of radiologists receiving occupational radiation, the dose estimates are considered highly speculative. The 226 adequately documented cases of leukemia attributed to radiation have been collected from the world literature since 1911; over 50 per cent of them are Japanese atomic bomb survivors and 25 per cent are British spondylitics, all having received several hundred rads. The authors do not consider the data adequate to predict the shape of the dose-incidence curve at lower levels of radiation or to determine whether or not any dose-rate dependence exists.—P. G. R.

EPIDEMIOLOGICAL STUDIES OF LEUKEMA IN PERSONS EXPOSED TO IONIZING RADIATION. L. H. Hempelmann. From the Division of Experimental Radiology, University of Rochester School of Medicine, Rochester, N. Y. Cancer Res. 20:18, 1960.

Essentially the same population groups are reviewed as in the study of Cronkite et al., abstracted above. A linear dose-incidence relation is found in the spondylitics given over 500 r and in the Japanese receiving more than 180 r. With the exception of children with thymic enlargement, who received about 130 r, no group given small amounts of radiation can be considered to have an established increase in tumor incidence. The negative findings in irradiated children with normal thymus sizes are not necessarily due to thymus differences but may be secondary to the use of smaller port-holes in treating this group. The author accepts Lewis' figure for the probability of developing leukemia in principle only for doses larger than several hundred rads. Naturally, this does not mean that possible hazards at lower levels can be overlooked.—P. G. R.


A survey of 1564 children receiving x-irradiation to the thymus from 1938 to 1946 was carried out, generally by telephone contact with mothers, and survey of death records of Pennsylvania. Ten per cent were untraceable. Two thousand, nine hundred and twenty-three untreated siblings were similarly evaluated. In the untreated group four cancers were noted (5.9 expected) and one leukemia (1.6 expected). In the treated groups, no leukemia or cancer were found, although one of the former, and four of the latter would be normal incidence. (Abstractor's note: Conclusions, therefore, were at variance with studies by D. W. Polhemus and R. Koch (Glendale, Calif.) and E. L. Saenger (Cincinnati, Ohio). Differences may in part be due to (1) source, (2) energy of source, (3) portal size, (4) number of cases, (5) technics of survey and (6) selection of controls).—J. L. B.


Several reports have appeared of cutaneous sensations of "heat" and "prickling" in humans exposed to high doses of ionizing radiation. In this experiment, four dose-rate groups of 10 mice each were placed in a compartment shielded at one end by lead but exposed at the other to 3 MeV x-rays. Preference of mice for the shielded end became definite after the accumulated dose of 300 to 400 r for all groups. Dose rates were 196 r/min., 169 r/min., 98 r/min. and 47.5 r/min. Extraneous stimuli were controlled.—J. L. B.


One hundred seven primates (average weight seven pounds) were exposed to graded doses (400 to 40,000 r) from cobalt60 within a multiple source field yielding 800 r per minute at the center. Analysis of survivals disclosed a three plateau curve, associated with deaths from (1) central nervous system, (2) gastrointestinal tract and (3) bone marrow. "Marrow deaths" (animals receiving 850 r and less) occurred from days 9 to 23, with animals dying on days 9 to 11 showing mostly cutaneous and gastric hemorrhages, and those dying on days 12 to 18 evidencing disseminated hemorrhages. Bacterial infiltration (e.g., lung) and ulcers (e.g., colon) tended to occur later in the "marrow deaths."—J. L. B.
ABSTRACTS


Estimate of degree of radiation injury in humans by various parameters is discussed: (1) increase in number of bilobed lymphocytes, (2) depression of formed elements in peripheral blood, (3) reduction in activity of DNA-synthesizing cells in peripheral blood and (4) reduction of mitotic index in bone marrow. Estimate is made of the LD_{50} of gamma radiation for untreated man to be 350 r (midline dose in tissue). Derivation was made from the Marshallese data and recent dog studies. A schedule of optimal therapy is graphed for the dog, as a function of midline exposure dose, including feasibility of homologous marrow transplantation.—J. L. B.


A detailed medical history and autopsy findings are given for a female, age 57 at death, employed as a dial painter for 14 months, starting at age 17. Pathologic fractures began to occur 10 years later, with the diagnosis of radiation osteitis. The patient died from a sphenoidal carcinoma after recurrence (3), attributed to residual radon seed activity (measurable by simple scanning technic) 12 to 21 years after implantation. Eighteen additional asymptomatic patients scanned, with implantation 13 to 30 years earlier, revealed 15 with counts from 16 to 137 per cent above background. Apparent continuing biologic effect (supported by atypical vaginal smears) is discussed and contrasted with the picture following radium implants.—J. L. B.


Of 12 young rats on normal diets and receiving 8.2 μc. calcium^{45} per Gm. of body weight at one month of age, 10 developed osteosarcomas. Of 16 mice in a second group, identical except for caloric restriction in diet after one month of age, six developed similar tumors. A second experiment differing in reduction of calcium^{45} dose to 2.6 μc./Gm. body weight yielded comparable low tumor incidences in both groups, like that obtained with dietary restriction in the first experiment. Squamous carcinomas of the mouth occurred with equal incidence in both normal and restricted diet groups.—J. L. B.

HEMOSTASIS


The metabolic functions of a platelet suspension were assessed by determination of oxygen consumption, glycolytic activity and ATP level. Glycolysis occurred under both aerobic and anaerobic conditions but was more pronounced in the absence of oxygen. Addition of glucose decreased the oxygen need. The level of ATP was only slightly reduced. After 5 days clot retraction ability was reduced to 63 per cent; this improved on addition of glucose. The findings indicate that under proper conditions of storage, platelets are not as liable to injury and degeneration as is generally assumed and can be preserved in a state near to the physiologic for at least several days.—J. L. B.


Thrombin (4 ml.) was injected into rabbits in a dose sufficient to increase the clotting time to over an hour. This effect was attributed to stimu-
lation of the anticoagulant system. Larger doses induced widespread thrombosis and death. An ECG taken after injection showed no change from normal, and no change in the ECG was detected following injection of the vasoconstrictor, pituitrin (0.5 ml). When both thrombin and pituitrin in the above doses were injected simultaneously, all animals died either instantly or during the next few hours. The ECG showed evidence of myocardial infarction, and autopsy revealed thrombi in many organs. In another experiment myocardial infarction was produced by ligation of a coronary artery. The animals were allowed to recover fully. It was then found that smaller amounts of thrombin (2 ml) were sufficient to produce a fatal myocardial infarction. The authors conclude that the vascular spasm induced by pituitrin causes a disturbance of the anticoagulant system predisposing to thrombosis, and that coronary thrombosis may occur without any actual damage to the vessel under favorable conditions of hypercoagulability and vascular spasm. Furthermore, once the heart is the seat of an infarct, hypercoagulability alone is sufficient to produce a recurrence.—J. J. B.


Compared to previous studies on the platelet sedimentation rate in normal children, this series of investigations examines the changes in rheumatic disease and in thrombocytopenic and thrombopathic syndromes. In the former condition the sedimentation rate of platelets was considerably increased, varying as other tests routinely used for the diagnosis of rheumatic activity. A second group of observations concerned thrombocytopenias, in which the sedimentation rate of platelets was decreased, and thrombocytopathic syndromes, in which there was an increase of the platelet sedimentation rate. The authors assume that the results are not greatly influenced by the platelet concentration but are probably due to morphologic and functional modifications of platelets.—P. d. N.

Miscellaneous


Large amounts of macroglobulins were present in the serum from a woman with arteriosclerosis and a patient with prostatic carcinoma. The latter patient also had cryoglobulins. No evidence of Waldenström's macroglobulinemia could be found in the bone marrow in these cases, and the usual signs and symptoms of this disease were absent. Moreover, no evidence was found of myeloma, cirrhosis of the liver or severe chronic infection. These cases may be classified as atypical macroglobulinemia, or they may represent an early phase of Waldenström's macroglobulinemia. Marrow aspirations in various sites might have been helpful in classifying the pathogenesis.—S. A. K.


Red marrow emboli to the lungs have been noted on occasion, particularly in fatal cases of multiple fracture. Apparently there is but a single known reference in the literature which mentions that such emboli may also arise as the result of sternal puncture. The second report of this potentially dangerous phenomenon adds to the risk—albeit so far slight—of this common diagnostic procedure.—O. P. J.